

Level II

Class Problem # 1 Answer Development of Potential Gross Income

What Potential Gross Income (PGI) will you use in your reconstructed operating statement for the Gateway Shopping Center?

Tenant	Leasable Area	Market Rent	PGI
Kathy's Cards and Gifts	2,500 SF	\$25	\$62,500
Sports Galore	2,500 SF	\$25	\$62,500
Deuce Hardware	4,000 SF	\$25	\$100,000
Palace Restaurant	3,000 SF	\$25	\$75,000
Mother Goose Shoes	2,000 SF	\$25	\$50,000
House of Beauty	1,500 SF	\$25	\$37,500
Safe Insurance	800 SF	\$25	\$20,000
Vacant Retail Space	2,500 SF	\$25	\$62,500
	18,800 SF		\$470,000

OR

18,800	Times	\$25
		\$470,000

The Potential Gross Income is :

\$470,000

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Class Problem # 2 Answer Development of Vacancy and Collection Loss

What Vacancy and Collection Loss Rate (V & C) will you use in your reconstructed operating statement for Gateway Shopping Center?

Property	Vacant Space	Total Leasable Area	Rents Receivable	Rents Collected
Riverton SC	1,200 SF	20,000 SF	\$475,000	\$469,775
Eagle Ridge SC	1,050 SF	18,000 SF	\$396,000	\$392,440
Chatham SC	1,600 SF	26,000 SF	\$524,000	\$518,760
Hyde Park SC	850 SF	14,000 SF	\$322,000	\$318,780
Gateway SC (Subject Property)	2,500 SF	18,800 SF	\$269,400	\$269,400

Vacancy Rate Calculation

Property	Vacant Space	Total Leasable Area	Vacancy Rate
Riverton SC	1,200 SF	20,000 SF	6%
Eagle Ridge SC	1,050 SF	18,000 SF	6%
Chatham SC	1,600 SF	26,000 SF	6%
Hyde Park SC	850 SF	14,000 SF	6%
Gateway SC (Subject Property)	2,500 SF	18,800 SF	13%

Vacancy Rate Calculation

6%

Collection Loss Rate Calculation

Property	Rents Receivable	Rents Collected	Uncollected Rents	Rents Receivable	CL Rate
Riverton SC	\$475,000	\$469,775	\$5,225	\$475,000	1%
Eagle Ridge SC	\$396,000	\$392,440	\$3,560	\$396,000	1%
Chatham SC	\$524,000	\$518,760	\$5,240	\$524,000	1%
Hyde Park SC	\$322,000	\$318,780	\$3,220	\$322,000	1%
Gateway SC (Subject Property)	\$269,400	\$269,400	\$0	\$269,400	0%

Collection Loss Rate Calculation

1%

The total Collection and Vacancy Rate is:

7%

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Class Problem # 3 Answer Development of Effective Gross Income

What is the Effective Gross Income (EGI) for the property?

Potential Gross Income (Problem 1)	PGI	\$470,000
Less: Vacancy and Collection Loss (Problem 2)	V & C (7%)	-\$32,900
Miscellaneous Income	Misc Inc	\$5,000
Effective Gross Income	EGI	<u>\$442,100</u>

The Effective Gross Income for the subject property is: \$442,100

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Class Problem # 4 Answer

Development of Allowable Expenses ANSWER

Indicate with an "X" which items you would use as stated, pro-rated (over more than one year), or would eliminate from your reconstructed operating statement.

		As Stated	Pro-Rate	Eliminate
A.	Management Fees	<u>x</u>	<u></u>	<u></u>
B.	Advertising	<u>x</u>	<u></u>	<u></u>
C.	Maintenance Personnel Salaries	<u>x</u>	<u></u>	<u></u>
D.	Maintenance Personnel Benefits	<u>x</u>	<u></u>	<u></u>
E.	Debt Service on Mortgage	<u></u>	<u></u>	<u>x</u>
F.	Water and Sewage Fees	<u>x</u>	<u></u>	<u></u>
G.	Electricity	<u>x</u>	<u></u>	<u></u>
H.	Gas for Heating	<u>x</u>	<u></u>	<u></u>
I.	New Roof	<u></u>	<u>x</u>	<u></u>
J.	Miscellaneous Repairs	<u>x</u>	<u></u>	<u></u>
K.	Supplies	<u>x</u>	<u></u>	<u></u>
L.	Casualty Insurance--3 year policy	<u></u>	<u>x</u>	<u></u>
M.	Liability Insurance	<u>x</u>	<u></u>	<u></u>
N.	Snow Removal	<u>x</u>	<u></u>	<u></u>
O.	Income Tax	<u></u>	<u></u>	<u>x</u>
P.	Donation, Christmas Gift Expense	<u></u>	<u></u>	<u>x</u>
Q.	Real Estate Taxes	<u></u>	<u></u>	<u>x</u>

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Class Problem # 5 Answer Development of Reserve for Replacements

Set up the Reserve for Replacements Account that you will use in your reconstructed operating statement. Determine the annual expense for these items.

Item	Cost to Replace		Typical Life		Reserve
Roof	\$30,000		15		\$2,000
HVAC	\$20,000		20		\$1,000
Parking Lot	\$40,000		10		\$4,000
Store Fronts	\$50,000		15		\$3,333

Total

\$10,333

The total Reserve for Replacements would be :

\$10,333

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Class Problem # 6 Answer
Development of Expense Ratio

What expense ratio should you use in your reconstructed operating statement for Gateway SC?

Property	Expenses	Reserve for Replacements	Total Expenses	EGI	Expense Ratio
Riverton SC	\$135,330	\$15,000	\$150,330	\$469,775	32%
Eagle Ridge SC	\$117,500	\$12,000	\$129,500	\$392,440	33%
Chatham SC	\$148,000	\$18,000	\$166,000	\$518,760	32%
Hyde Park SC	\$88,020	\$10,800	\$98,820	\$318,780	31%

The Expense Ratio to use is	32%
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Class Problem # 7 Answer

Reconstructed Operating Statement

Using the information you developed for Problems 1, 2, 3, and 6, reconstruct an operating statement for the Gateway Shopping SC. Then develop its Net Operating Income (NOI).

Potential Gross Income (Problem 1)	PGI	\$470,000
Less: Vacancy and Collection Loss (Problem 2)	V & C	-\$32,900
Miscellaneous Income	Misc Inc	\$5,000
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Effective Gross Income	EGI	\$442,100
Less: Expenses (at 32%)	-Exp	(\$141,472)
Less: Reserves for replacements	in expenses	\$0
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Net Operating Income	NOI	\$300,628

The subject property's net operating income (NOI) is: \$300,628

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Class Problem # 8 Answer Land and Building Capitalization Rates

Calculate a Land Capitalization Rate.

Calculate an improvement/building capitalization rate.

Calculate a Land Capitalization Rate.

Discount Rate	9.0%
Plus Effective Tax Rate	1.5%
Land Cap Rate	<u>10.5%</u>

Calculate an improvement/building capitalization rate.

Discount Rate	9.0%
Plus Effective Tax Rate	1.5%
Plus Recapture Rate	2.5%
Building Cap Rate	<u>13.0%</u>

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Class Problem # 9 Answer

Overall Capitalization Rate

and

Weighted Land and Building Cap Rates

You are given the following information:

Discount Rate	8.0%
Recapture Rate	2.0%
Effective Tax Rate	2.0%
Land to Building Ratio	1:3

Calculate an overall capitalization rate (OAR)

Step 1) Calculate a Land Cap Rate:

Discount Rate	8.0%
Plus Effective Tax Rate	2.0%
Equals Land Cap Rate	10.0%

Step 2) Calculate a building capitalization rate.

Discount Rate	8.0%
Plus Effective Tax Rate	2.0%
Plus Recapture Rate	2.0%
Equals Building Cap Rate	12.0%

Step 3) Weight the land and building cap rates by the land to building ratio

Land	1 part 1/4	25.0%
Building	3 parts	75.0%
Total	4 parts	100.0%

Land Cap Rate	10.0%	X	25.0%	2.5%
Building Cap Rate	12.0%	X	75.0%	9.0%
Total Overall Capitalization Rate				<u>11.5%</u>

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Class Problem # 10 Answer Overall Capitalization Rate From the Market

Calculate an overall capitalization rate.

Property	EGI	Total Exp. And RR	NOI	Sale Price	OAR
Riverton SC	\$469,775	\$150,330	\$319,445	\$2,778,000	11.5%
Eagle Ridge SC	\$392,440	\$129,500	\$262,940	\$2,307,000	11.4%
Chatham SC	\$518,760	\$166,000	\$352,760	\$3,065,000	11.5%
Hyde Park SC	\$318,780	\$98,820	\$219,960	\$1,895,000	11.6%

The Overall Capitalization Rate is:

11.5%

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Class Problem # 11 Answer

Direct Capitalization and Overall Cap Rate

Use the answers from Problems 7 and 10 and calculate the value of the Gateway Shopping Center using direct capitalization in the income approach to value.

Answer from Problem # 7:

The subject property's Net Operating Income (NOI) is: \$ 300,628

Answer from Problem # 10:

The Overall Capitalization Rate (OAR) is: 11.5%

Apply the Direct Capitalization Method IRV Formula

$$V = I/R$$

Net Operating Income/Over All Rate = Market Value

$$\$300,628/11.5\% = \underline{\underline{\$ \quad 2,614,157}}$$

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Class Problem # 12 Answer

Direct Capitalization Vs. Gross Income Multiplier

Using the EGI arrived at in Problem # 3 and the chart below from problem # 10, calculate a Gross Income Multiplier (GIM) and determine of the value of the subject property using Direct Capitalization in the Income Approach.

Information from Problem # 10:

Property	EGI	Total Exp. And RR	Sale Price
Riverton SC	\$469,775	\$150,330	\$2,778,000
Eagle Ridge SC	\$392,440	\$129,500	\$2,307,000
Chatham SC	\$518,760	\$166,000	\$3,065,000
Hyde Park SC	\$318,780	\$98,820	\$1,895,000

Calculation of Gross Income Multiplier (GIM): $GIM = \text{Sale Price} / \text{Annual EGI}$

Property	Sale Price	EGI	GIM
Riverton SC	\$2,778,000	\$469,775	5.9
Eagle Ridge SC	\$2,307,000	\$392,440	5.9
Chatham SC	\$3,065,000	\$518,760	5.9
Hyde Park SC	\$1,895,000	\$318,780	5.9

The Gross Income Multiplier in this problem would be 5.9

Now apply the VIF formula:

EGI Times GIM = Market Value

\$442,100 times 5.9 = \$2,608,390

Now compare this answer to the one arrived at in Problem # 11:

\$2,614,157

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Practice Problem # 1 PGI-EGI-NOI Answer

You are to develop the Potential Gross Income (PGI), the Effective Gross Income (EGI), and the Net Operating Income (NOI). Once you have done that, calculate an estimate of value for this property.

Potential Gross Income	\$640,000
Vacancy and Collection Loss	-\$38,400
Misc Income	0
Effective Gross Income	\$601,600
Operating Expenses & RR	-\$108,288
Net Operating Income	\$493,312

COMPUTATION OF PGI, EGI, AND NOI FOR ABOVE PROBLEM

PGI	32,000	\$20	\$640,000
V and C	\$640,000	6%	-\$38,400
Misc Income	\$0		0
Effective Gross Income			\$601,600
Operating Expenses & RR	\$601,600	18%	-\$108,288
Net Operating Income			\$493,312

THE INCOME FROM ABOVE IS
Overall Capitalization Rate
Estimate of value using the IRV formula

\$493,312
10%
\$4,933,120

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Practice Problem # 2 Answer

Development of NOI and Overall Cap Rate

Potential Gross Income		\$150,000
Vacancy and Collection Loss		10%
Operating Expense		\$25,000
Christmas Gift		\$2,500
Property Value		\$800,000
Loan to value ratio		0.4

The above is given to you. Develop the NOI and the Overall Capitalization Rate.

Net operating Income	\$110,000
Overall Cap Rate	13.8%

DEVELOPMENT OF NET OPERATING INCOME

PGI	\$150,000
V & C Loss	-\$15,000
Misc Inc	\$0
Effective Gross Income	\$135,000
Operating Expense	-\$25,000
Net operating Income	\$110,000

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Practice Problem # 3 Answer
Expense Ratio Problem

What expense ratio will you use for your subject property?

SC	EGI	Expenses	Reserves	Total Exp	Exp Ratio
Riverton	\$469,775	\$135,330	\$15,000	\$150,330	32.0%
Eagle Ridge	\$392,440	\$117,500	\$12,000	\$129,500	33.0%
Chatham	\$518,760	\$148,000	\$18,000	\$166,000	32.0%
Hyde Park	\$318,780	\$88,020	\$10,800	\$98,820	31.0%

Total Expense Ratio 32.0%

Income Approach

Practice Problem # 4 (A) Answer

Gross Rent and Gross Income Multipliers

Gross Rent Multiplier Problem

The subject property is a single family dwelling which is rented for \$475 per month. The market rent is also \$475 per month. Develop a GRM from the following data and use it to calculate a possible indication of value.

Sales						
	1	2	3	4	5	6
Sale Price	\$60,000	\$72,000	\$65,000	\$62,000	\$68,000	\$70,000
Monthly Rent (EGI)	\$425	\$520	\$460	\$450	\$490	\$500
GRM	141	138	141	138	139	140

GRM = Sales Price divided by the Monthly Rent (EGI)

Median is 140

Possible indication of value: Market rent of \$475 times 140 = \$66,500

Practice Problem # 4 (B) Answer

Gross Income Multiplier Problem

The subject property produces Gross Annual Effective Gross Income of \$72,000. Analysis of rents and, sales of comparable properties rendered the following. Based upon this information calculate a Gross Income Multiplier (GIM) and then calculate an indication of value for the subject property.

Sale	Sale Price	EGI	Gross Income Multiplier	Range
1	\$675,000	\$75,000	9.0	8.4
2	\$600,000	\$68,000	8.8	8.6
3	\$720,000	\$85,700	8.4	8.8
4	\$750,000	\$87,500	8.6	8.9
5	\$650,000	\$73,000	8.9	9.0

GIM = Sale Price divided by the median EGI

Possible indicated range of value:

Subject property EGI of \$72,000 times low range =	\$604,800
Subject property EGI of \$72,000 times high range =	\$648,000
Subject property EGI of \$72,000 times median range 8.8 =	\$633,600